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II. The Claims are Patentable

Independent Claim 25 has been amended to further recite a solder dam located on the surface of at least one of the microbeam leads opposite the carrier. This embodiment of the claimed invention is illustrated in Figures 8C and 8D of the patent application. Applicants respectfully submit that none of the cited references, taken either individually or in combination, teaches or suggests this aspect of the claimed invention.

The Office Action rejects the claims of the patent application under 35 U.S.C. § 102 as anticipated by either of the following references: U.S. Patent No. 4,784,972 to Hatada and U.S. Patent No. 3,634,930 to Cranston. Importantly, with regard to the recitation of a solder dam, the Office Action alleges that the portion of the lead 12B illustrated in the '972 Hatada patent anticipates the recited solder dam of the claimed invention. The Office Action concedes that the '972 Hatada patent does not verbatim disclose a solder dam. For this reason, the Office Action alternatively cites the combination of the '972 Hatada patent with U.S. Patent No. 5,367,124 to Hoffman. The Office Action alleges that it would be obvious to combine the solder dam disclosed in the '124 Hoffman patent with the device of the Hatada '972 patent. Applicants respectfully disagree.

Applicants first disagree with the Office Action's characterization of the lead portion 12B of the '972 Hatada patent as a solder dam. Portion 12B is not a solder dam, but instead is a portion of the lead itself defined by portions 12A and 12B and not a solder dam positioned on the lead as recited in amended independent Claim 15. The purpose of the solder dam of the claimed invention is to prevent solder from wetting on the non-coated areas of the microbeam during the bonding procedure. Under the scenario proposed by the Office Action, the lead 12B itself is used as a solder dam, meaning that it will allow solder to wet onto itself. Applicants do not comprehend how portion 12B of the lead would have any damming effect. Solder flowing from the portion 12A could run along portion 12B in various directions and even off the lead onto the substrate. The Office Action concedes that the '972 Hatada patent does not disclose a solder dam verbatim. Applicants agree, but further submit that the '972 Hatada patent does not teach or suggest use of a solder dam at all and that lead portion 12B does not operate as a solder dam to keep solder from wetting on the lead.

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Applicants further disagree that the combination of the solder dam of the '124 Hoffman patent with the leads of the '972 Hatada patent render the claimed invention obvious. Applicants, instead, submit that the claimed invention uses a solder dam in a different location and for a different purpose than that disclosed in the '972 Hatada patent and therefore is patentable.

First, structurally, the solder dam of the amended independent Claim 25 is located on top of the lead opposite the substrate to prevent solder flow during attachment of the IC chip to the microbeam leads. The '972 Hatada patent, on the other hand, discloses a solder dam placed a vertical back surface of a lead when the lead and IC chip are connected to a board.

Second, it appears that the Office Action's stance is that the mere mention of a solder dam in the '124 Hoffman patent is enough to reject the claimed invention. Applicants do not claim to have invented solder dams per se. Solder dams have been known for several years. Indeed, solder dams were known in the art long before the '124 Hoffman patent was filed. In this regard, the claimed invention is patentable for the same reason the '124 Hoffman patent was patentable. The Hoffman '124 patent takes a known article, (i.e., a solder dam), and places it at a selected location on the lead to prevent wetting of solder on the lead. As evidenced by independent Claim 16, although solder dams were known at the time, placement of a solder dam on the backside of a lead before the lead is soldered to a board was considered a patentable feature of the '124 Hoffman.

In the instant case, a solder dam is placed at a different location and used for a different operation. Specifically, the solder of the claimed invention is placed on top of a lead to prevent solder wetting when the IC chip is attached to its leads, as opposed to the side of a lead, when the lead is attached to a circuit board as disclosed in the '124 Hoffman. Since the '124 Hoffman patent's solder dam placement and use were patentable despite the fact that solder dams were known at the time, then the placement and use of the solder as recited in the claimed invention should also be patentable. As such, Applicants respectfully submit that amended independent Claim 25, as well as the claims that depend therefrom are patentable over the cited references taken either individually or in combination.


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CONCLUSION

In view of the remarks presented above, it is respectfully submitted that all of the present claims of the application are in condition for immediate allowance. It is therefore respectfully requested that a Notice of Allowance be issued. The Examiner is encouraged to contact Applicants' undersigned attorney to resolve any remaining issues in order to expedite examination of the present application.

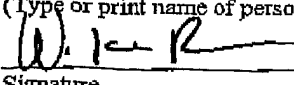
It is not believed that extensions of time or fees for net addition of claims are required, beyond those that may otherwise be provided for in documents accompanying this paper. However, in the event that additional extensions of time are necessary to allow consideration of this paper, such extensions are hereby petitioned under 37 CFR § 1.136(a), and any fee required therefore (including fees for net addition of claims) is hereby authorized to be charged to Deposit Account No. 16-0605.

Respectfully submitted,


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